

DEHYDRATION CASUALTIES

FMST 0413

17 DEC 99

TERMINAL LEARNING OBJECTIVE (S):

1. Given a dehydration casualty in a combat environment (day and night) and the standard Field Medical Service Technician supplies and equipment, manage a dehydration casualty, per the references. (FMST.04.14)

ENABLING LEARNING OBJECTIVE(S):

1. Without the aid of reference materials and given a list of symptoms for dehydration and a list of preventive measures, identify the preventive measures, per the student handbook. (FMST.04.14a)
2. Without the aid of reference materials and given a list of symptoms for dehydration, identify the appropriate treatment, per the student handbook. (FMST.04.14b)
3. Without the aid of reference materials and given FMST MOLLE Medic bag and simulated casualty, identify, treat, and monitor the casualty, per the student handbook. (FMST.04.14c)

OUTLINE:

A. DEHYDRATION

- 1. DEFINITION OF DEHYDRATION:** The condition that results from excessive loss of bodily fluid.
- 2. CAUSES OF DEHYDRATION:**
 - a. Nausea - predisposes a patient to dehydration because they are unwilling to drink fluids for fear of vomiting.
 - b. Vomiting - when a patient has been vomiting, their ability to maintain fluids is decreased. Patients tend to not drink fluids to prevent continued emesis.
 - c. Diarrhea - may cause excessive water loss with the passage of stool.
 - d. Fever - an increase in the body's temperature will cause increased loss of water through evaporation.
 - e. Medications - can alter the body's requirement for water. Many medications can alter the water levels within the body (fluid shifts), or require increase water for metabolism (i.e. Entex and Ephedra containing compounds).
 - f. Alcohol and Caffeine Beverages.
 1. Alcohol - inhibits ADH (anti-diuretic hormone) levels, thereby increasing kidney excretion of water.
 2. Caffeine beverages have a diuretic effect and cause increased water loss.
 - g. Perspiration – water is expended in an attempt to cool the body. In warmer climates, the body will produce more perspiration in order to maintain normal body temperature. In severely hot climates, it is not unusual for a person to lose up to a quart of water per hour through perspiration.
 - h. Respiration – water loss occurs during normal respiration. This loss is increased if the person begins to breathe at a faster rate, or switches to mouth breathing (versus nasal breathing).

- i. Unpalatable drinking water (i.e. too hot, bad taste) - may discourage individuals from drinking the required fluid levels.
 - 1. Sources of water are scarce in many hot environments, such as deserts. Always make sure you have checked Chlorine levels in water bulbs and/or there are plenty of filled water containers for the appropriate number of personnel.

3. SIGNS / SYMPTOMS OF DEHYDRATION:

- a. Early Signs:
 - 1. Dry mucous membranes – i.e. “cotton mouth”
 - 2. Increased thirst
 - 3. Weakness or fatigue
 - 4. Apathy (loss of motivation)
 - 5. Dizziness
 - 6. Tachycardia
 - 7. Decreased urine output (oliguria). The urine produced will usually be dark yellow or amber in color (very concentrated).
 - 8. Syncope (fainting)
 - 9. Hypotension
- b. Latent Signs:
 - 1. Absence of salivation
 - 2. Swollen tongue
 - 3. Alterations in visual acuity
 - 4. Altered level of consciousness / mental status changes
 - 5. Anuria
- c. Positive “Tilt Test” (description and procedure in #7)

4. TREATMENT FOR DEHYDRATION:

- a. Remove the patient from the environment which predisposed him / her to the dehydration (i.e. if in a hot and sunny field environment, move the patient to a shady or cool area).
- b. Oral Fluid Replacement.
 - 1. Try to slowly sip water or electrolyte replacement solution (Gatorade, Lactated Ringers, etc.).
 - 2. IV fluid replacement (Lactated Ringers) if unable to tolerate oral fluids, the patient will require large amounts of fluids, or the fluids will need to be infused quickly.
- c. Intravenous Fluid Replacement – used when the patient is unable to maintain oral intake of fluids. Can also be utilized if:
 - 1. A large amount of fluids needs to be administered to correct the dehydration (i.e. 2 – 3 liters of fluids)
 - 2. A large amount of fluid needs to be rapidly introduced into the patient
 - 3. You wish to deliver a specific amount of fluids over a specific amount of time (i.e. 2 liters over 3 hours)
- d. Find the cause of the dehydration and correct
 - 1. Vomiting – administer an anti-emetic, such as Phenergan or Tigan
 - 2. Fever – administer an anti-pyretic, such as Tylenol or Motrin

3. Diarrhea – administer an anti-diarrheal medication, such as Immodium

5. PREVENTIVE MEASURES:

- a. Educate your personnel. Let them know what type of work they will be doing, the climate they will be working in, and the timeframe that they will be working. This allows for adequate preparation and hydration.
- b. Drink plenty of water. Water requirements vary from five to 13 quarts per day. Encourage them to drink small amounts of water frequently as necessary. Be well hydrated prior to any physical activity (i.e. force marches). A general rule to remember is that the water you drink today will be the water in your system for tomorrow's activities.
- c. Work hours should be tailored to fit the climate. The practice of alternating short periods of work and rest should be followed. Heavy work should be scheduled for cooler hours (i.e. early morning or late afternoon hours).
- d. Avoid consumption of alcohol, coffee, teas, and colas.
- e. Maintain a balanced diet. Do not take salt tablets (unless under the care of a Medical Officer).

6. TILT TEST PROCEDURES:

- a. The "Tilt Test" is a way of determining whether a patient has had significant bodily fluid loss by evaluating their body's response to orthostatic changes over time.
 1. Have the patient lie flat on his back for five minutes.
 2. Take the patients pulse and blood pressure. Document.
 3. Have the patient stand up slowly. Document the patients response to standing up (i.e. if the patient felt dizzy or light-headed, fainted, etc). If the patient is unable to stand because he/she is too dizzy or nearly faints, document this as well.
 4. After the patient has been standing 3-5 minutes, retake his pulse and blood pressure and document.
- b. Evaluation of Tilt Test Vital Signs:
 1. Normal:
 - a) A person who is not dehydrated should have the following response in vital signs when the tilt test is performed:
 - 1) pulse remains constant
 - 2) no dizziness, light headedness, or weakness
 - 3) blood pressure is the same or increased
 2. Abnormal: The following changes in the vital signs are indicative that the patient has lost a significant amount of body fluid and he/she may need either oral or intravenous fluid replacement therapy.
 - a) Pulse is increased by greater than 20 beats per minute
 - b) Systolic blood pressure is decreased by 10-20mm Hg or more
 - c) Diastolic blood pressure is increased by 10-20mm Hg or more

REFERENCE (S):

1. First Aid for Soldiers (FM 21-11)
2. Cold Weather Medicine Handbook
3. Wilderness Medicine Handbook